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Public library assessment in customer perspective

To which customer group should the library listen?

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Abstract

Purpose – The purpose of this paper is to examine and discuss the basis for management decisions among options expressed by customer groups on the basis of their perception and assessment of library service.

Design/methodology/approach – In 2008, the authors investigated how customers perceive library functions and assessed the actual activities of Echigawa Library (Shiga prefecture, Japan). Two consecutive analyses were conducted: factor analysis and cluster analysis in order to segment the customers into individual groups based on their perception of libraries. Each of the segments of library customers was then examined to ascertain how they appreciate and make use of the Echigawa Library.

Findings – The survey results indicate that in general the customers show a high demand for multiple library services and give a good grade for its services delivery. Four groups of library customers are identified by cluster analysis; however, their demand for service and judgment of the adequacy of service delivery are fairly diverse. Among them, one customer group shows a reasonably positive response to the range of library services and is confirmed to be a yardstick group.

Research limitations/implications – Since library evaluation should provide the criteria for determining management decisions, the question of which groups of customers the library should take into consideration is vital. This question is solved through the detailed investigation of empirical data.

Originality/value – The paper investigates the particular situation of a small library to offer a model that could be used globally for a more subtle and precise approach to the improvement of library service than is usually attempted.

Keywords Japan, Public libraries, User studies, Customer surveys, Customer satisfaction

Paper type Research paper

Introduction

Many libraries these days have implemented performance measurements of some sort. Various standards and guidelines for assessment are provided through the International Organization for Standardization (ISO), International Federation of Library Associations and Institutions, UNESCO, etc. (ISO 11620:1998, 1998; ISO 11620:2008, 2008; Poll and te Boekhorst, 2006; Japan Industrial Standards Committee, 2007). Performance measurement typically covers all activities of an entire organization. Therefore, a wide variety of performance indicators are employed to assess the activities of the organization (Ridley and Simon, 1943). For example, the ISO 11620:2008 (*Information and Documentation – Library Performance Indicators*) has deployed 45 indicators: 14 indicators for resources, access and infrastructure, 15 for use, 11 for efficiency, and five for collection. It defined the aim of performance measurement:



[...] as tools to assess the *quality and effectiveness* of service, resources, and other activities provided by a library and to assess the *efficiency* of resources allocated by the library to such services and other activities.

It is a big task for an average library to make full use of these performance indicators. Even counting each process is not a small burden, to the point that many libraries rely only on daily statistics. Sometimes, loan data are put in use as a benchmark measure to compare the activity with other libraries, but such data are apt to be affected by the volume of bestsellers and popular materials loaned out, which does not account for the “quality and effectiveness” of services and resources for the community.

In order to assess library services and activities while avoiding incorrect or excessive use of performance indicators, the first step is to confirm beforehand what quality and effectiveness of library services are demanded by the community (customers). Since the objectives of a library as a public service are supposed to be very clear, there have been few studies to understand in detail what library services customers actually value. Moreover, in recent times, the demands of residents in many communities are becoming more diverse, so an investigation of the quality and effectiveness of library service for customers is now strongly urged.

This study investigates the particular situation of a small library in Japan, while offering a model that could be used globally for a more subtle and precise approach to the improvement of library service than is usually attempted. Using cluster analysis, we identify segments among library customers that indicate significant differences in their interests and expectations. This research highlights the need to explore the characteristics of library customers in order to make wise management decisions.

Methodology and Echigawa Library

“The customer is present while the service is being produced and [...] may even take part in the production process” (Zeithaml and Bitner, 1996). Since services, unlike goods, tend to be delivered with cooperation between provider and consumer, the higher the level of service a library provides, the more customers will respond, and then better service will eventually be generated. For this reason, we selected a library as the target of this study that is already known for its high level of service. Echigawa Library has high performance indicators (e.g. loan number per capita of Table I) and was recently celebrated with the “Library of the Year” award (Intellectual Resource Initiative, 2007).

Echigawa Library was established by the town of Echigawa (renamed “Aisho” after amalgamation with another town in 2005) located on the eastern side of Lake Biwa of Honshu Island in Japan. This town used to be a post-station along an historical highway near Kyoto. Now, due to urbanization in recent years, it has become an ordinary suburban area. The library was opened in the year 2000; current basic data about it are in Table I.

The authors conducted two types of investigation. Interviews of library customers and librarian staff including the former director were carried out in April and May in 2008; and then in November 2008, a written survey of visitors was conducted (Table II: framework of questionnaire). In the interviews, the library visitors were asked how they utilized this library. On the basis of these results, some additional questions were devised for the written survey.

Results of survey data
Customers’ demand for service and their judgment of adequacy of service delivery
With regard to the quality and effectiveness of services, the written survey questionnaire asks respondents to indicate both the level of their demand and their judgment of adequacy for 11 service items on a six-point Likert scale (from 1 through 6, with 6 as the maximum).

In this paper, authors use the concept of “adequacy” to express customers’ judgment about the quality and effectiveness of service in their library experience. In contrast to “satisfaction” survey which is judged only from actual experience (Dugan *et al.*, 2009), our questionnaire invites customers’ comprehensive observations rather than an “encounter-specific evaluations”. And the adequacy concept here addresses customers’ “diagnosing the way the organization [library] performs”, as well as “diagnosing the way customers feel” (Schneider and White, 2004). With that in mind, the gap between demand and adequacy implies almost the same value as that quality identified by the gap-theory model (Parasuraman *et al.*, 1985).

Table I.
Basic data about
Echigawa Library

Input in 2009		Output in 2009	
Library budget	JPY 63,220,000	Registered user	8,735
Floor space	1,688 m ²	Loan (for individuals)	257,000 titles
Staff	Three (permanent) + four (temporary)	ILL (borrow)	9,466 volumes
Collection			
Books	183,000 volumes (17,462 volumes, intakes)		
Magazines/ journals	291 titles		

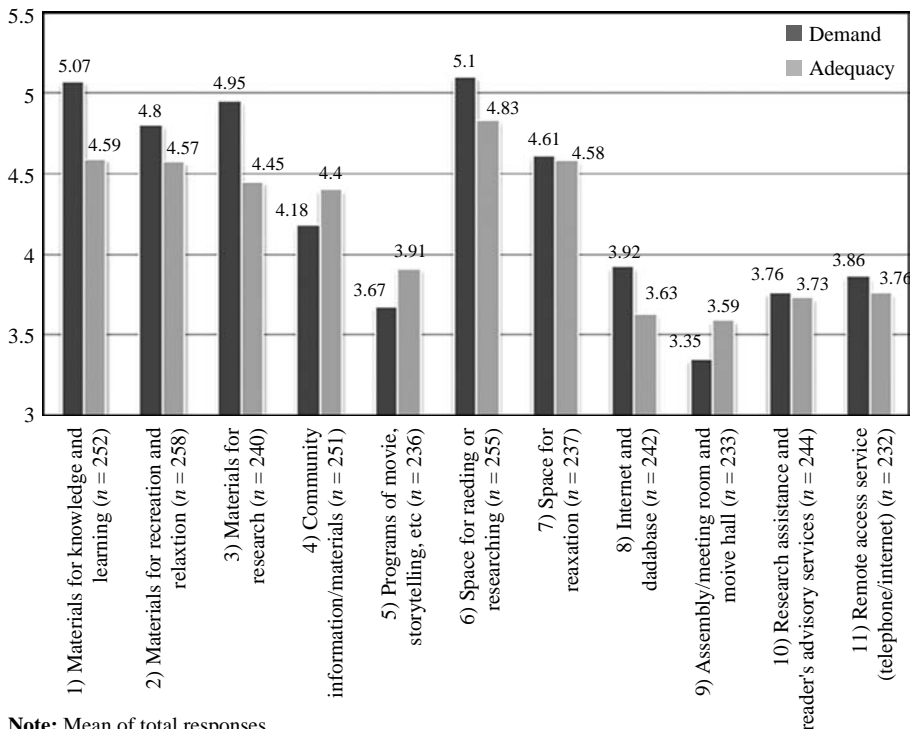
Source: JLA (2010)

Table II.
Framework of
investigation

April-May 2008	Date November 2008	Outline of questions
<i>Interviews</i> A total of 17 visiting customers; former director of library, director of library and library staff members		Customer aims for their visit; perceptions of Echigawa Library
<i>Written survey</i>	314 response, Out of 333 samples (94.5 percent) From 10.00 a.m. (opening) to 6.30 p.m. (closing) over two days (Friday-Saturday)	1. Image and opinion about libraries 2. Demand for service and judgment of adequacy of service delivery in Echigawa Library 3. Information resources in daily life 4. Demographic questions 5. Free comment about Echigawa Library

Figure 1 shows the mean scores of demand and adequacy for Echigawa Library services. The demand in this case may be interpreted as the “desirable” level of customer expectation because there are no direct customer expenses involved in library use. And the adequacy seems to be associated with their demand. Generally, we can conclude that the scores for adequacy are higher than those for the minimum level of customer expectation, but not all at the desirable level. There are some items whose score of adequacy is not higher than that for demand, but they may be discounted for that the demand is still at the “desirable” level. Among the items whose mean score is just below 4, item 9 (assembly/meeting room and movie) has a convincing reason, which is that the library accommodates a museum with assembly/meeting functions in the same building, obviating the need in the library itself; item 8 (internet and databases), 10 (research assistance and readers’ advisory service), and 11 (remote access service (telephone/internet)) reflect the lagging development in Japanese public libraries. Item 5 (movies, storytelling programs, etc.) is, however, slightly different, since many kinds of events are frequently carried out here. All the remaining scores are above 4 and two of those exceed 5. The important point is that to assure the quality and effectiveness of service for customers the scores of demand and adequacy should match closely at a high level.

Finally, it should be noted that the calculations show the customer’s average score, but averages do not always mean that all customers gave the same ratio of demand for service and adequacy of services delivery. Some specific customers may have given higher or lower scores in either area.



Note: Mean of total responses

Figure 1.
Customers' demand for
service and judgment
of adequacy of service
delivery in Echigawa
Library

Segmentation of customers

In order to segment the customers into individual groups based on their perception of libraries, the analysis was conducted along the following procedure.

(1) Factor analysis was applied to the responses to question image and opinion about libraries (15 questions on a six-point Likert scale) to explore constructive concepts. As a result, three factors were extracted: function for research and information seeking; place for communication and relaxation; place for thinking and understanding (Kaiser-Meyer-Olkin measure of sampling adequacy: 0.819). These are considered customers' perception of the library's role (Table III).

(2) Based on the factor scores acquired, mainly two cluster analysis methods (furthest neighbor and Ward method) were for use in analysis. We chose the Ward method's four groups result (Figure 2), which clearly identify segments of the entire customer from the standpoint of three constructive concepts and demographic features. These are then interpreted through cross tabulation along with the opinions stated in the questionnaire, as follows (for more on the methods used to identify these segments, see Klopfer and Nagata (2009)).

Group 1 ($n = 58$, 21 percent of the respondents) indicates negative score in factor 1 and 3 and slightly positive in factor 2. The members of this group mainly consist of school students and seniors living near the library. These respondents come to the library because it is a convenient space for study or relaxation, without paying much attention to the collections.

Group 2 ($n = 62$, 22 percent of the respondents) responds negatively to all factors. They take their use of it seriously in a sense, but visit the library less often. For that reason, their assessment for the library function is somewhat lower. They are not

Customers' image and opinion about libraries	Pattern matrix ^a		
	1	Factor 2	3
3. Seek information in library when starting something	0.782	-0.108	-0.068
17. I sometimes use library to read the books on hobby, recreation, and leisure	0.735	-0.046	-0.135
12. Think of library first when some information on life is necessary	0.670	-0.026	0.068
16. Librarian gives you answer to many varieties of your questions	0.447	0.138	0.161
15. Library is the information base of community	0.358	0.162	0.270
4. Library provides government information materials and inquiries	0.296	0.032	0.244
11. Library enables interactions among various people	0.073	1.014	-0.190
13. Library facilities are fit for meetings	-0.076	0.419	0.162
9. Library is an excellent place for using the internet	-0.129	0.364	0.251
10. It is also good place to relax and rest in library	-0.077	0.315	0.310
1. Library is a place to think and understand something	0.016	0.010	0.571
2. Become more efficient in work and study in library	-0.118	0.091	0.557
8. Children should visit library quite frequently to develop their reading habit	0.261	-0.014	0.353
14. Library collection is useful for others and next generation	0.225	-0.052	0.344
7. Want to get information and knowledge on my job in library	0.153	0.075	0.236

Notes: Extraction method: maximum likelihood; rotation method: Promax with Kaiser normalization;
^arotation converged in six iterations

Table III.
Factor analysis of
customers' image and
opinion about libraries

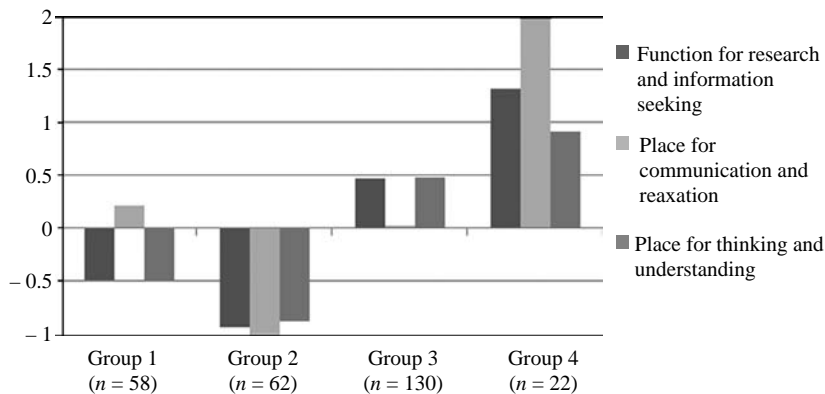


Figure 2.
Four groups clustered
by factor score

interested in the social aspect of the library, but only in what it can offer for their specific information needs. The major constituents of group 2 are males aged 25-39.

Group 3 ($n = 130$, 41 percent of the respondents) is the biggest cluster of respondents. Around half of each age group except teens and those in their late 20s belong to this group. They consider libraries as places to do research and learn, as well as for communication among neighbors and for relaxation. The members are made up of slightly more females than males. This group is characterized by an all-around or balanced approach to the library, making use of all of its functions.

Group 4 ($n = 22$, 8 percent of the respondents) is the smallest group. All their views of the library are highly positive. In this group, the ratio of females is highest and percentage of older people is also relatively high.

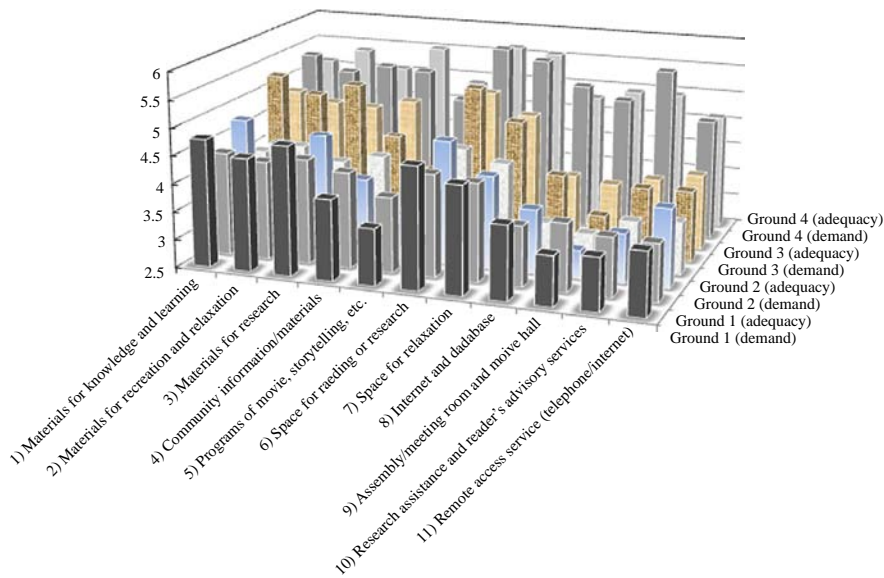
Customers' demand for service and judgment of adequacy of service delivery by each group

Figure 3 is a graph for demand for service and adequacy of service delivery in Echigawa Library by segmented groups of customers. The mean scores shown in Figure 1 are split into the four customer segments, and these segments shows a clear difference (except the demand item of 1 (materials for knowledge and learning) and 11 (remote access service) and the adequacy item 4 (community information/materials)). ANOVA confirms that every item has statistically significant difference ($p < 0.05$). Moreover, according to the Bonferroni test each combination of groups in Table IV shows significant differences between them at the 0.05 level.

Discussion

In this study, four customer groups were identified through their perception of libraries. The mean scores of each group's demand for service and adequacy of service delivery are split, respectively, by this segmentation as shown in Figure 3. Group 1 and 2 fall in the bottom area, group 4 almost always maintains at the top, and group 3 is set in the middle.

The variation in perceptions between customer groups suggests that a library has to consider its customers' demand carefully, and determine which groups should be catered to and which services should be given priority in order to implement overall



Note: Mean of each group

Figure 3.
Demand for service and
judgment of adequacy
of service delivery in
Echigawa Library by
customer groups

Service items	Demand	Adequacy
1. Materials for knowledge and learning		2 and 3; 2 and 4
2. Materials for recreation and relaxation	2 and 3	1 and 4; 2 and 3; 2 and 4; 3 and 4
3. Materials for research	2 and 3; 2 and 4	2 and 3; 2 and 4
4. Community information/materials	1 and 4; 2 and 4	
5. Programs of movie, storytelling, etc.	1 and 4; 2 and 4	1 and 4; 2 and 4; 3 and 4
6. Space for reading or research	1 and 3; 1 and 4; 2 and 3; 2 and 4	1 and 4; 1 and 3; 2 and 3; 2 and 4
7. Space for relaxation	1 and 4; 2 and 3; 2 and 4	1 and 4; 2 and 4; 3 and 4
8. Internet and databases	1 and 4; 2 and 4; 3 and 4	1 and 4; 2 and 4; 3 and 4
9. Assembly/meeting room and movie hall	1 and 4; 2 and 4; 3 and 4	1 and 4; 2 and 4; 3 and 4
10. Research assistance and readers' advisory service	1 and 4; 2 and 4; 3 and 4	1 and 4; 2 and 4; 3 and 4
11. Remote access service (telephone/internet)		2 and 4

Table IV.
The result of
Bonferroni test

improvements in quality and effectiveness of service. In considering this question, we must evaluate and compare the four identified groups.

Figure 3 and Table IV both highlight the great extent of significant differences between groups. Group 4 is of particular interest here. As noted, this group reflects the positive sides of three constructive concepts, and its scores for demand for service and adequacy of service delivery in Figure 3 are also very high. Especially, item 6 (space for reading or research) marks 5.75 in demand for service and 5.63 in adequacy of service delivery. Many respondents in that group have chosen the highest score, 6. Neither the score of demand

nor of adequacy goes below 4.5 for that group. Other groups are overwhelmed here. The constituents of this group must surely be library devotees, but they seem to be more oriented to the concern for communication and relaxation as compared with group 3. From a sociological perspective, it is notable that this group has the highest rate of female customers, and the percentage of older people is also relatively high.

However, the authors have not determined that this group is the standard group to which the library management should give most attention, not only because it deviates quite far from the demand of other groups (especially from items 4 through 11), but also because it is the smallest group, reflecting only 8 percent of customers. We surmise that the higher score of adequacy which generates lots of significant differences of scores can be treated as an over-estimation or an over-affectionate assessment of the library from this segment.

In contrast, the members of group 1 seem to use the library as a study space or a place of relaxation, and their understanding has not quite grasped the entire role of a library. According to their comments, group 2 also has a narrow view, but regards the library primarily as a place to access information. Group 2's assessment of the library is rather low; their low scores mark large number of significant differences with other groups. Despite their stated demand for materials, they are not frequent visitors to the library. These groups too are relatively small and do not seem the appropriate group for a public library offering a wide range of services to peg as its standard.

The remaining segment to be examined is group 3. This group is positive to all of the constructive concepts of the factor analysis including factor 2. In respect to demand for service and judgment of adequacy of service delivery, the scores about materials and space are high, and their demand is almost equal to their estimation of the library's adequacy. While considering the library to be a place of research or study, group 3 seems to make appropriate judgments, also acknowledging that libraries are simultaneously places of social exchange and relaxation. Group 3 would seem to be taking a well-balanced view of the library, with frequent visits to the library. Except for the age group of teens and those in their late 20s, this group accounts for half of respondents in every age group and this is the biggest group representing 48 percent of respondents. So, it is appropriate to determine this group as a yardstick group for Echigawa Library management.

Lastly, a note about the service items that have particularly low scores of demand for service and adequacy of service delivery. The score of item 9 (assembly/meeting room and movie hall) is low owing to Echigawa Library's setting as already mentioned. Item 8 (internet and databases), 10 (research assistance and readers' advisory service), and 11 (remote access service (telephone/internet)) are also low. The former also has a good reason, while the latter reflects the lagging of ICT service and advisory service in public libraries in Japan including Echigawa Library. In the results of this survey, the reply of only group 4 might suggest those demands, but there are no useful comments on this topic and the high score does not address this problem fully.

Conclusion

Satisfaction surveys and even studies of library quality and effectiveness are almost always based on averages derived from a sample of the entire customer base. In addition, typical customer surveys focus on predefined, encounter-specific evaluations. This study started from a different position, exploring first which topics were valued by customers and then exploring how different segments of customers may

respond to library services. The typical response in business may be to focus only on the opinion of a majority of all customers, but a library cannot take this approach because in principle as a public service for the community it must serve the whole population. Accordingly, more efforts to sound customers out are required. This study shows that deeper analysis of customers will uncover distinct groups that have different or even cross-cutting expectations and needs that might muddy the results if they are represented only as broad averages. Each library may have different segments of customers, however, and a library may have to decide where to place attention to improve services in consideration of these segments.

In this study, customers' segmentation was examined not only by demographic factors, but also by extracted constructive concepts, after which service by those segments was examined. It is found that the biggest customer group shows a gratifyingly positive response to the range of library services offered by Echigawa Library. Therefore, the library's management approach is easily justified in this case. The authors surmise that this may be the result of excellent library management. As described above, good customers' reactions are produced by good service provision directed by library policy and practice, and it has been observed that the award-winning Echigawa Library is operated responsively with close attention to the townspeople.

There is no guarantee, however, that one appropriate customer group will always form the majority as in this instance. This study attempts to set an effective framework for analyzing the diversity of customer behavioural factors, including expectations and evaluations of services, and to suggest methods for identifying distinct groups of library customers for purposes of evaluation. One limitation of the study, which is surely a possible topic for future research, is that it does not always lead to obvious management solutions. While this research suggests a method for identifying significant differences in customer segments, it does not guide library managers in determining exactly which groups should serve as the best markers of library performance, nor how to meet the needs of diverse and potentially contradictory customer demands. The model provided here will nonetheless help clarify management choices even in communities with divided or contradictory consumer characteristics.

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